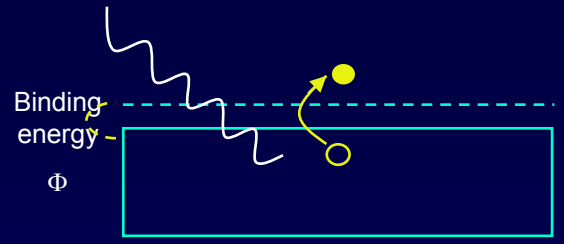
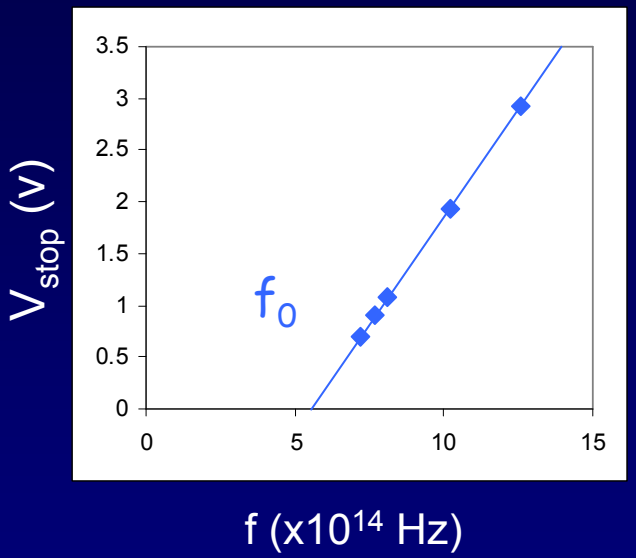
Photoelectric Effect

$$KE_{max} = e \cdot V_{stop} = hf - \Phi$$



The work function:

- Φ is the *minimum* energy needed to strip an electron from the metal.
- Φ is defined as positive.
- Not all electrons will leave with the maximum kinetic energy (due to losses).



Conclusions:

- Light arrives in "packets" of energy (photons).
- E_{photon} = hf
- Increasing the intensity increases # photons, not the photon energy. Each photon ejects (at most) one electron from the metal.

Recall: For EM waves, frequency and wavelength are related by $f = c/\lambda$.
Therefore: $E_{photon} = hc/\lambda = 1240$ eV-nm/λ